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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,913	07/31/2001	Toru Matsumoto	F-7094	4363

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JORDAN AND HAMBURG LLP
122 East 42nd Street
New York, NY 10168

EXAMINER

DEJESUS, LYDIA M

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 08/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/918,913

Applicant(s)

MATSUMOTO ET AL.

Examiner

Lydia M. De Jesús

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-10 is/are rejected.
- 7) ☒ Claim(s) 4 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species A in Paper No. 8 is acknowledged. The traversal is on the ground(s) that the species are so closely related that a search in either group would essentially be identical and that said search, being substantially identical, dictates that prosecution of a divisional application resulting from the restriction would result in a duplication of effort by personnel of the Patent Office. This is not found persuasive because the claims directed to the separate species recite mutually exclusive characteristics and hence there is a patentable difference between the species as claimed. See M.P.E.P. §806.04 (f)-(h) and §808.01(a).

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 5 and 12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 8.

Specification

3. The substitute specification filed June 16, 2003 has been reviewed by the examiner and is approved for entry.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 6-8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hughes et al. [U.S. Patent 5,063,342, hereinafter 'Hughes'].

Hughes discloses a semiconductor temperature detecting circuit [7] comprising: a first [Q2] and second [Q2] semiconductor temperature sensor; means [14,12] for supplying different constant currents to the first [Q2] and the second [Q1] semiconductor temperature sensors; and means for determining temperature based on a relationship between a ratio of output voltages of the first and the second semiconductor temperature sensors and the temperature, wherein the means for detecting the temperature comprises a voltage dividing circuit [20, 22, 24] for dividing the output voltage of the first semiconductor temperature sensor by a predetermined ratio [K]; a comparator [26] for inputting the output voltage of the first semiconductor and inputting the voltage output of the second semiconductor temperature sensor as a second input and inherently includes a processing circuit for detecting the temperature based on an output of the comparator and the corresponding relationship (see lines 48-57 of column 4) and determining if said temperature has reached a threshold. Said processing circuit outputs the detected temperature as a digital signal (see lines 48-57 of column 4).

Hughes also discloses said first and second semiconductor temperature sensors are on a substrate of a conductive type of a P type or an N type (see lines 54-58 of column 3 and lines 30-37 of column 6).

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With respect to claims 8 and 10: The steps recited in said claims will be performed during the normal operation of the circuit disclosed by Hughes.

6. Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuno et al. [U.S. Patent 6,255,891 B1, hereinafter Matsuno].

Matsuno discloses a semiconductor temperature detecting circuit comprising: a first [Q1] and second [Q2] semiconductor temperature sensor; means [I1,I2] for supplying different constant currents to the first [Q1] and second [Q2] semiconductor temperature sensors; and means for detecting temperature [7] based on a corresponding relationship between a ratio of output of voltages of the first [Q1] and second [Q2] semiconductor temperature sensors and the temperature provided by an amplifier [3].

The circuit disclosed by Matsuno will perform, during its normal operation, the method steps recited in claim 8.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of JP 05248962 A [hereinafter Shimoda].

Hughes discloses a semiconductor temperature detecting circuit as claimed, as stated above in paragraph 5, and further shows that said first and second semiconductor temperature sensors are bipolar transistors having different dimensions such that the effective emitter area of the first sensor [Q2] is a factor [J] larger than that of the second sensor [Q1], but fails to show in particular said first and second semiconductor temperature sensors including respectively bipolar transistors connected in Darlington connection by numbers of stages different from each other.

However, Shimoda teaches that it is very well known in the art to connect the transistors forming a semiconductor temperature sensor in a Darlington connection.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a sensor configuration of the circuit disclosed by Hughes resulting in a different emitter area for each sensor by providing a Darlington connection with a different number of stages for each of the first and second semiconductor temperature, as taught by Shimoda, in order to provide a high output voltage and lesser process dispersion (see abstract of Shimoda).

The circuit resulting from the combination of Hughes and Shimoda, as discussed above, will perform during its normal operation, the steps recited in the method of claim 9.

Allowable Subject Matter

10. Claims 4 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fujihira discloses an overheating detection circuit including a reversely biased junction having a temperature dependent reverse leakage current for detecting overheating of a power integrated circuit. Tuthill discloses a switched current temperature sensor circuit with compounded ΔV_{BE} . Descombes discloses a temperature level detection circuit. Beer et al. disclose a method for determining the temperature of a semiconductor chip and semiconductor chip with configuration. Winston, Jr. discloses a semiconductor light source temperature measurement. Hayashi et al. discloses a cryogenic measurement equipment. Thomson et al. discloses a four current transistor temperature sensor and method.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lydia M. De Jesús whose telephone number is (703) 306-5982. The examiner can normally be reached on 7:30 to 4:00 p.m., Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F.F. Gutierrez can be reached on (703) 308-3875. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 305-3431 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



Diego F.F. Gutierrez
Supervisory Patent Examiner
Technology Center 2800

LDJ

August 4, 2003